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Science, Policy and the Public in Italy 2019: Poster Abstracts

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Social Media: A New Tool for Peacebuilding

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In recent years, gender-based violence has become a prominent focus of contemporary discourse in Italy. Notwithstanding the intensified emphasis on the issue, the homogeneity of the discourse limits its capacity to transform conditions of violence. Following Johan Galtung's conceptualisation of violence, I argue that the contemporary discourse on gender-based violence has neglected a fundamental dimension of violence: cultural violence. Accordingly, I explore the ways that sites of cultural production in Italy, namely, schools and the media, are complicit in reproducing cultural violence. The governmental lack of interest in reassessing the structure and content within these institutions sustains norms legitimising violence.

Beyond exposing the ways in which cultural violence is manifested, this study shows how it is being addressed and considers one tool that remains largely dismissed in the project to ameliorate violence: social media. The Italian collective imagination on social media has been largely dominated by its negative implications. In contrast, my research sheds an optimistic light on social media by exposing how certain projects on Instagram address cultural violence. Two projects in particular convey the point: Freeda and Meglio delle Donne. Through a content analysis of the images, articles, and videos shared on the projects, I illustrate how they serve as unique and valuable resources on gender education; the content of the projects contrasts significantly to that offered in official informational institutions. The projects thus fruitfully disrupt traditional patterns of cultural formation and help to build a more confidently critical citizenship in ways that merit greater attention not only from academics but also from policy-makers. [1]

20 years after the Bologna Process—Quality assurance through learning analytics: a new paradigm in the design of online learning

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The universities of the future will become increasingly international, connected to the labour market, technologically advanced, designed and organized with the students at the center. Italy is a candidate for a leading role in the process

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of renewing European university education, projected for 2020. In fact, the meeting of the 48 Ministers of the countries of European Higher Education Area will be held in Rome, to decide on developments in the university world over the next ten years. Italy obtained the chairmanship of the Secretariat of Bologna Process from 2018 to 2020. Rapid technological expansion has favoured the development of e-learning studies, and although we are witnessing a progressive digitalisation and dematerialisation of procedures in traditional universities, these cannot keep up with telematics universities, digital natives with just-in-time courses. The clear demarcation between traditional non-digital universities and telematics universities, has not helped a proper assessment of the quality of training offered, ending up encouraging confusion between the mode of delivery of a course and the quality of the same, feeding the reservations about e-learning by the more traditional component of public and non-public universities. The evaluation of quality e-learning is a central issue for the quality assurance of any master degree course, in relation to the different levels of integration of the technology from which it is concerned. Telematics universities, as well as all universities, must be able to operate in a national system based on clear, shared and sustainable rules, dictated by the awareness that the competitive environment goes beyond national borders, collaborates with higher education systems in other parts of the world. This contribution aims to develop a shared approach on quality assurance, highlighting the benefits of teaching and research of telematics universities, analyse the application of learning analytics techniques, according to the principles stated in the Bologna Process and subsequent ESG.

Research on Psychoactive drugs: the lack of evidence-based policies in Italy

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Psychoactive drugs are strictly regulated worldwide, with the theoretical aim to reduce the negative effect that their use could have for the users and for society. However, strict policies have often been guided by cultural and moral judgment rather than scientific evidence. Ideology and misjudgements contributed to build a social narrative, which progressively condemned not only the recreational use, but even the discussion about illegal compounds. At the same time, drug-trafficking has become an international economic power, with a profit of about 25 million euros only in Italy, which empowers organised crime in the first place. In recent years, many researchers have shown how some of the so-called 'drugs of abuse', such as MDMA, LSD and psilocybin, can have beneficial therapeutic effects, where legalised psychoactive drugs fail to treat invalidating symptoms, or lack a satisfying level of efficiency and reliability (refer to [2], for a consistent review). Despite the increasing international rise of awareness, Italy seems to be late and deaf about the issue. As a direct effect, public investment on new psychoactive drugs is insufficient, and national regulations make it difficult to undertake research in the field. I aim to review the latest scientific evidence on the beneficial therapeutic use of psychoactive drugs, and to propose alternative policies (bringing examples from other states, and from present international proposals) for an evidence-based change of paradigm. Moreover, I will compare the molecular mechanisms of legal and illegal drugs, trying to understand the historical process that drove Italy to the current legislation. Starting from distinguishing economic, social and cultural reasons from science evidence is a first fundamental step to move further steps for the present and future society.

Industrial Symbiosis and its Contribution to a Circular Economy: An overview of Industrial Symbiosis in Italy

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'Industrial Symbiosis' (IS) is one of the strategies to reduce the use of natural resources and fossil fuels through a more efficient utilisation of industrial waste. Worldwide and also in Italy, there are several examples of an industrial symbiosis. A research project by the Italian agency for new technologies, energy and sustainable economic development (ENEA) funded the development of a framework for the development and implementation of the first Italian Platform for Industrial Symbiosis implemented in Sicily (2011-2015) [3]. The poster takes a detailed review paper [4] by Luciano et al. (2015) as a starting point for addressing the following three questions:

1. How has the ENEA project contributed to industrial symbiosis in Italy?
2. What is the contribution of industrial symbiosis to a circular economy?
3. What are research gaps and which policies could support further industrial symbiosis in Italy?

The findings are visualised in a 'heat map' of (major) industrial production sites and parks in Italy, a table with key results from previous IS activities and a summary of policy recommendations for further IS activities.

Towards an Italian nuclear Renaissance: a roadmap of opportunities and challenges

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The maintenance of human civilization depends entirely on our ability to generate and distribute electricity while preserving the Earth ecosystem. Electric power generation from fossil fuels is no longer an option due to huge emissions of greenhouse gases and atmospheric pollutants typical of that now obsolete technology. In contrast, nuclear power generates electricity without releasing carbon dioxide or any other pollutant into the atmosphere. Nuclear power is integral part of the energy infrastructure of all major economies, with the exception of Italy, and despite the crucial role played by Italian scientists in the development of nuclear fission technology. Yet Italy was among the first western powers to implement a civil nuclear programme, capable of achieving in a few years the world's third largest power generation capability. 'Italian' emissions from fossil-fuel plants still need to be nullified if Italy wishes to comply with the 2015 Paris agreement on climate change, an achievement which requires the development of new nuclear plants on Italian soil. Here it is suggested what possible ways forward are there for Italy to implement a financially feasible new civil nuclear programme. Starting with a few back-of-an-envelope calculations of the likely magnitude of environmental and economic damage caused by Italy's aversion to nuclear, a set of achievable goals is established for the new Italian nuclear programme to remedy the damage done, and to realign the country to the rest of the industrialised world. It is recognised that, following the necessary lift of the current nuclear ban, crucial to the success of Italy's new energy strategy will be the promotion of policies that must ensure fair competition between nuclear and other low-carbon sources of electricity. Finally, of the innovative reactor concepts currently being developed, the most suitable for the Italian civil nuclear programme of the future are identified.

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Energy and sustainability between the Ecology of law, Green Law and the rights of Nature

Paola Grimaldi, *University of Naples Suor Orsola Benincasa*

Pollution and climate change are pushing us one step closer to ecological default, so we need to bet on the Green Economy and the development of Green Law. The Italian doctrine (Mattei U., Capra F., Quarta A.), which has long been denouncing the ecological crisis facing Italy, proposes an ecological conversion of the main institutions of the Italian legal system, now obsolete in the face of the dramatic environmental situation in our country; all accompanied by a necessary 'ecological literacy' of the individuals that helps them to reflect on the new proprietary forms and on the change of the relationship between the sovereign state and the shared global one. In the field of Energy and Sustainability, witnesses and models of success, worldwide, are those Latin American countries, where nature, elevated to a legal entity, is protected at constitutional level and where 98% of electricity is produced with renewable energies thanks to targeted Government Plans, use of clean sources and smart grids. The European Union has set a policy that pushes member states to increase the use of renewable sources and reduce fossil fuels. In Italy, the energy regulatory framework is now fragmented between different standards and above all, in the field of renewable energies, growth is slow and not at all competitive. The proposal that we intend to make to Italian politicians with this project is, first of all, the recognition of legal subjectivity to Nature as a 'common good'; furthermore, that of entirely transposing Directive 2018/2001 / EU on the development of renewable sources; to introduce into our system, integrating and modifying its contents, the concept of energy as a common good rather than private property; specific rules in the field of civil offense and give rise to mandatory energy education courses in schools.

Towards an effective data based infrastructure management system

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Existing bridges are not as strong as we would like them to be. As new theories develop, design codes change and evolve over time. However, existing structures that were built according to superseded models remain operational. Moreover, due to repeated loading and exposure to the environment, they deteriorate and lose strength over time. Assessing their residual strength is therefore a major challenge that has drawn a lot of attention from the engineering and scientific community. The management of existing infrastructure faces high costs associated with maintenance, repair, strengthening and decommissioning. However, the current management system is not able to differentiate between low and high priorities in an effective way. This has very high societal consequences. The big impact of infrastructure deterioration was shown by the recent collapse of several bridges in Italy. Managing the infrastructure network efficiently while ensuring the safety of the community is a challenging task. Implementing a robust system that manages risks accurately and identifies priorities is paramount. This research project aims at developing a new and more accurate assessment methodology of deteriorating concrete infrastructure. With new theories based on objective data and advanced inspection methods, a more effective management system can be implemented. This would allow engineers to estimate the residual resistance of bridges more accurately, reducing the safety risks, maintenance costs and environmental impact of the infrastructure network.

Creation of a 3D microfluidic device to study lymph node transformation

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Lymph nodes (LN) are essential organs that serve as immune hubs and are responsible for starting immune reactions against external pathogens and cancer cells. However, in many solid tumours, they fail in defending the body becoming initial sites for cancer metastasis. We still know little about the processes involved and how the LN functions in cancer or therapy and this is also due to the current available tools. In vitro models do not incorporate the 3-dimensional nature of the microenvironment whereas animal models, in spite of their intrinsic higher level of complexity, require node dissection at each discrete time point, showing only a partial experimental datum. In addition, they carry several ethical issues. In recent years, in fact, there has been growing concern about animal welfare and values such as the 3Rs rule have been introduced to reduce animal experimentation. In this context, the aim of this project is to create a microfluidic system that incorporates in vitro and ex vivo components to model LN transformation in a controlled, tractable system: a 3D in vitro model that would easily allow us to follow events longitudinally or to manipulate the environment. Once assessed and proofed to be consistent, this novel system will be used as a model of study as well as an alternative tool to test new drugs. In conclusion, these technologies that sit in between 2D traditional systems and animal models, have great potential to make drug testing cheaper and quicker, to reduce animal experimentation and most importantly provide new insights on cancer biology.

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